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Substituting the given values of the co-ordinates, we have

$$\tfrac{1}{6}\begin{vmatrix} 2-t & 3-2t & 4-2t & 1 \\ 1-3t & 4-2t & 2+6t & 1 \\ 6t & 0 & 0 & 1 \\ 1 & 2 & 2 & 1 \end{vmatrix}=V.$$

This reduces to $16t^3-14t^2+2t=\pm.0625$; whence by solving, $t=-.026$, .045, .125, .217, .684, and .705 seconds, respectively.

Also solved by *J. SCHEFFER* and *G. B. M. ZERR*.

PROBLEMS.

53. Proposd by O. D. SMITH, A. M., Professor of Mathematics, Alabama Polytechnic Institute, Auburn, Alabama.

Solve the differential equation, $dy/dx=y(x-y)/x(x+y)$; and show that $x=y\log(xy)$.

54. Proposed by Prof. J. SCHEFFER, A. M., Hagerstown, Maryland.

A certain solid has a square, side$=a$, for its base, and all parallel sections are squares, the two sections through the middle points of the opposite sides of the square are semi-circles, however. Find surface, volume, and the centers of gravity of each.

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QUERIES AND INFORMATION.

Conducted by J. M. COLAW, Monterey, Va. All contributions to this department should be sent to him.

PLAYFAIR'S PSEUDO-PROOF OF THE ANGLE-SUM.

BY GEORGE BRUCE HALSTED.

The living person who has most capital invested in Playfair's fallacious demonstration reproduced in the March number of THE AMERICAN MATHEMATICAL MONTHLY, pp. 77—79, is Professor George C. Edwards of the University of California, who unfortunately gives it as the basis for his treatment of parallels in §16 of his Elements of Geometry, Macmillan, 1895.

His §16 is Playfair's Proposition I "All the exterior angles equal four right angles," with Playfair's fallacious proof. Then his §17 is "THEOREM. If two straight lines make equal angles with a third straight line intersecting them, they will make equal angles with *any* straight line intersecting them," in proving which he twice cites §16. Then as Exercise 1 under §17 he has "Establish the theorem when the fourth line passes through *B*." But this very special case of his §17 he assumes in his §16, thus making his treatment of parallels a simple